

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

June, 2016

00856

BICE-016 : STRUCTURAL ANALYSIS – III

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks. Assume missing data, if any. Scientific calculator is permitted.

1. Analyse the structure loaded as shown in Figure 1 by the moment distribution method. Draw the bending moment diagram. $EI = \text{constant}$ 14

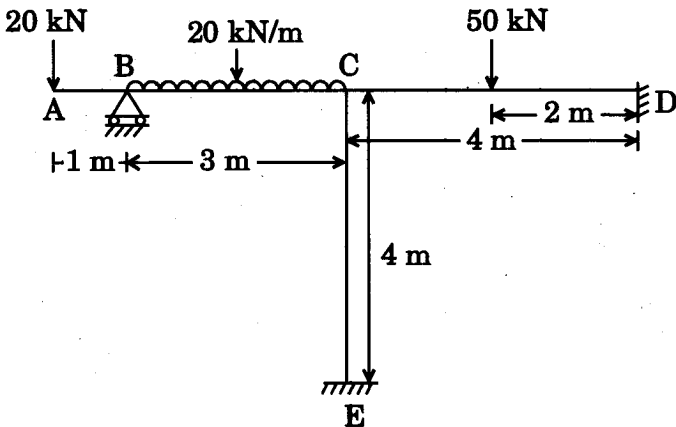


Figure 1

2. (a) Explain briefly the Portal method. 7
- (b) Find the shape factor of the T-section given in Figure 2. 7

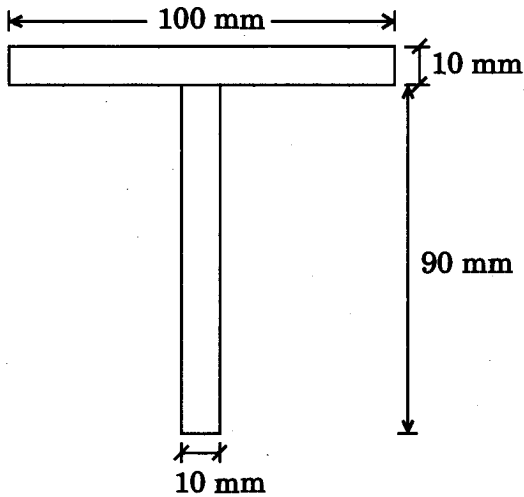


Figure 2

3. Analyse the continuous beam shown in Figure 3 by Kani's method. 14

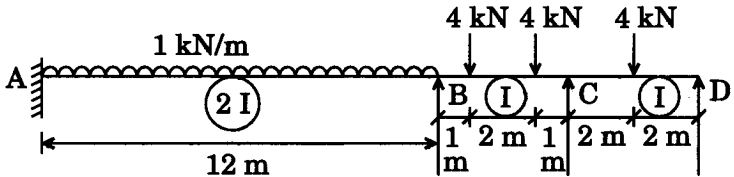


Figure 3

4. (a) Write the advantages and disadvantages of indeterminate structure analysis through different methods. 6
- (b) Draw the influence line diagram for reaction at B for the propped cantilever shown in Figure 4. Compute the influence line ordinates at 1.5 m interval. 8

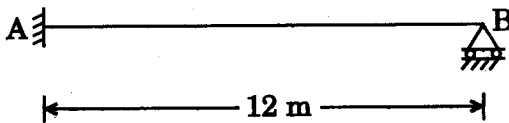


Figure 4

5. (a) Explain in detail the stiffness matrix method with the help of a suitable example. 6
- (b) Analyse the frame shown in Figure 5 by stiffness matrix method. 8

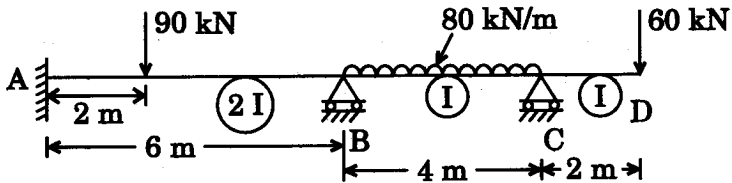


Figure 5

6. The portal frame shown in Figure 6 is subjected to ultimate load as shown in figure 6. Find the plastic moment required if it is of uniform section throughout.

14

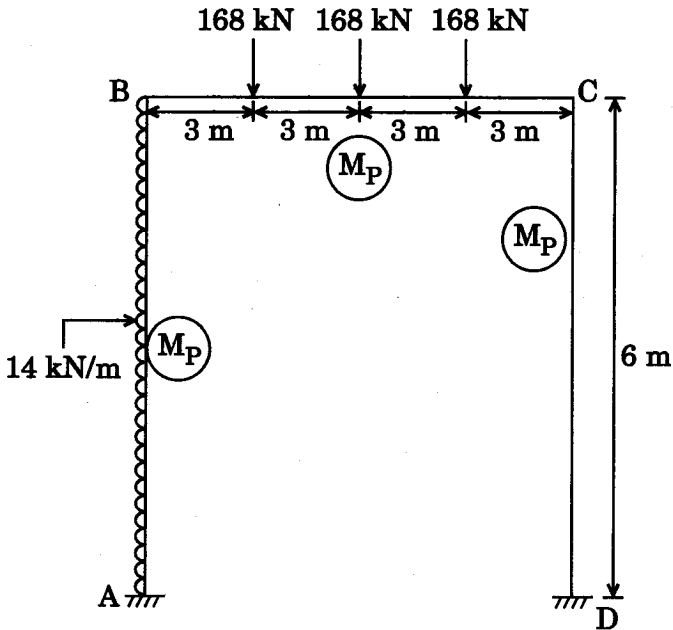


Figure 6

7. (a) Explain the analysis of fixed arches by Elastic centre method.

6

(b) Determine the static indeterminacies of the following figures :

8

